THE JOURNAL OF SCHOOL HEALTH

VOL. VIII NO. 7

September
1 9 3 8

DR. EVERETT C. JESSUP.
ROSLYN, L. I.
NEW YORK

PUBLISHED BY
THE AMERICAN SCHOOL HEALTH ASSOCIATION

THE JOURNAL OF SCHOOL HEALTH

Published monthly, except July and August, at Buffalo, N. Y.

Editor
CHARLES H. KEENE, M. D.
3335 Main Street, Buffalo, N. Y.

Assistant Editor
EARL E. KLEINSCHMIDT, M. D.
Loyola University, Chicago, Ill.

SUBSCRIPTION RATES TO THE JOURNAL

Membership dues, $2.00, including $1.50 subscription. Subscription $1.50.
Single copies 25c

Address all communications to
THE EDITOR, 3335 Main Street, Buffalo, New York

AMERICAN SCHOOL HEALTH ASSOCIATION

Organized 1927

Devoted to the interests and advancement of those engaged in school health activities and the services rendered by them.

Officers of American School Health Association

President:
John Sundwall, M. D., University of Michigan, Ann Arbor, Michigan

President-Elect:
Harold H. Mitchell, M.D., Department of Health, New York City

Vice-Presidents:
James F. Rogers, M. D., Office of Education, Washington, D. C.
Fredrika Moore, M. D., State Department of Health, Boston, Massachusetts

Executive Secretary and Treasurer:
A. O. DeWeese, M. D., Kent, Ohio

Editor:
Charles H. Keene, M.D., Buffalo, N. Y.

GOVERNING COUNCIL

Term Expires 1938

Edna Bailey, Ph.D., Berkeley, Calif.
A. L. Beaghler, M. D., Denver, Colo.
F. E. Harrington, M. D., Minneapolis, Minn.
V. K. Volk, M. D., Saginaw, Mich.

Term Expires 1939

Helen Ahrens Cary, M. D., Portland, Ore.
Dorothy Deming, R.N., New York, N. Y.
Sven Lokrantz, M. D., Los Angeles, Calif.
W. A. McPheeters, M. D., Goldsboro, N. C.
Lon Morrey, D.D.S., Chicago, Ill.

Term Expires 1940

J. L. Bowman. M. D., Montgomery, Ala.
John E. Burke, M. D., Schenectady, N. Y.
Allen G. Ireland, M. D., Trenton, N. J.
Charles L. Outland, M. D., Richmond, Va.
John T. Phair, M. D., Toronto, Canada

Affiliated Associations

Don W. Gudakunst, M. D., Michigan Ass'n, Detroit, Mich.

THE JOURNAL OF SCHOOL HEALTH

Vol. VIII SEPTEMBER, 1938 No. 7

CONTENTS

Injuries in Physical Education; Causes, Prevention and Care 181
Karl Weber

The Control of Football Injuries in High School 190
James T. O'Shea

Evaluation of Dental Programs for Children 198
J. M. Wesan, D.D.S.

Editorials 202

Abstracts 204

Notes 211

Review 212

Meetings 214

Published by
THE AMERICAN SCHOOL HEALTH ASSOCIATION
3335 Main St., Buffalo, New York
Editorial Office, 3335 Main St., Buffalo, New York

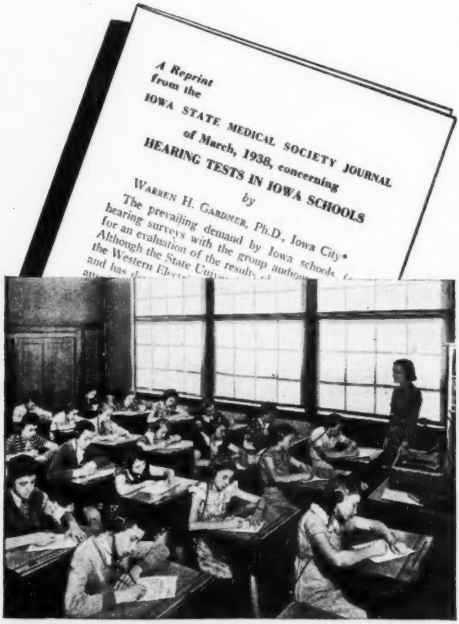
Copyright September, 1938, by
The American School Health Association

Entered as second-class matter at the Post-Office at Buffalo, N. Y.
October 5, 1937

You should read this report on

60,000 Hearing Tests

. . . made in Iowa schools with the Western Electric Audiometer



BECAUSE it points out clearly a condition that confronts every school physician and educator—and also points the way to rectify this condition—we have reprinted a report recently published in the Iowa State Medical Society Journal.

It gives you briefly the findings of a 2-year survey made under the auspices of the State University of Iowa. Using a Western Electric group Audiometer—which tests 40 children at one time—the examiner tested the hearing of 46,095 pupils. He found 3,330 had defective hearing—a ratio of 1 in 14. Re-tests of these children raised the total of tests to over 60,000.

Many unsuspected hearing defects were discovered. Hard-of-hearing children—regarded as unintelligent—were found in ungraded rooms, or floundering in regular classes. In some cities, 45% of the pupils were sent to physicians for ear examinations. 60% to 80% of these were given, or were recommended for, treatment or operation. The hearing of many was restored to normal.

For your free copy of this important report—and a booklet giving details of the Western Electric 4B Audiometer which makes possible quick, accurate, group hearing tests—send the coupon to Graybar today.

Western Electric
AUDIOMETER
Distributed by GRAYBAR *Electric Company*
Graybar Building, New York, N. Y.

GRAYBAR ELECTRIC CO. JHS-9-38
Graybar Building, New York, N. Y.

Gentlemen: Please send me reprint of "Hearing Tests in Iowa Schools" and details of the Western Electric 4B Audiometer.

NAME .....

ADDRESS .....

CITY ..... STATE .....

THE JOURNAL OF SCHOOL HEALTH

Devoted to the interests and advancement of school health service and instruction. Your participation by membership is solicited.

Vol. VIII SEPTEMBER, 1938 No. 7

INJURIES IN PHYSICAL EDUCATION; CAUSES, PREVENTION AND CARE

KARL WEBER

Public Schools, Niagara Falls, N. Y.

One person out of every six in the United States or about twenty million children are in the various schools of the land, and we cannot doubt that this large number is due to compulsory attendance. Compulsory education has afforded tremendous privileges to the American people but it has, at the same time, created equally gigantic problems. Not the least of which is the safety of the child. Much is being done about the health of the school child, although to charge the school with the entire responsibility for his health would be impractical and foolish, since the years previous to the child's entrance in school and the time which he spends outside of it after school age begins, are great and determining factors in the matter of his health formation. However, having compelled the child to come to school, the state is bound to take every precaution for his care and safety while the child is under its jurisdiction. Among many others, it is the responsibility of the state and the school to provide all those facilities which will constitute a wholesome environment: adequate lighting and ventilation, pure drinking water, toilet and washing accommodations, cleanliness of the building and grounds, adequate play facilities, protection from communicable diseases, and protection from accidents.[1]

It is with this phase of the school's responsibility, which grows increasingly important every year, that this article is principally concerned. The protection from those accidents which occur in the physical education department of the school, their causes and results in physical injuries, is a topic in which teachers of health and physical education should be particularly interested. The number of fatalities as well as serious accidents throughout the United States is increasing year by year. We can, with terrible precision, prophesy that out of every one hundred persons born, six will eventually die of accidental injury. Despite all efforts, accidents in the United States demand a toll of 274 lives every day, 41 persons disabled every hour, 19 persons injured each minute, resulting in an economic loss of $109 every second.[2] Nationally, we account for about 80,000 deaths and

1. "School Health Policies"—W. W. Bauer. Hygeia, Vol. 13, Sept., 1935.
2. Health Bulletin for Teachers, Vol. 8, No. 6, Feb., 1937, Metropolitan Life Insurance Co.

2,000,000 serious non-fatal accidents each year. It is difficult to grasp the full significance of these figures. The economic losses alone are staggering.[3] From the days of our caveman ancestors, man has been using his head to protect his body. What better place to start the campaign against carelessness, ignorance, and weakness than in the schools?

It is essentially a matter of and for education—education through the means of platform, press, radio, visual expression,—in fact by all of the means at our command; but the place for the groundwork to be laid, and a firm foundation of knowledge and cognizance of the situation to be established to which all other facilities may be added, is in the school. But we should not preach what we will not practice. We must, in this as in other things, teach by example. By using every precaution against accidents in the child's school environment, we not only fulfill our responsibility to him, but we inculcate in him the ideas of foresight, precaution, and help in this situation of such immense seriousness facing America today. Indeed, first aid in the matter of accidents needlessly caused, is one of the major public health problems of today.[4]

From a survey of 104,000 injuries, it was found that by far, the greatest number, nearly 40,000, resulted from falling and slipping. The third largest group was caused by broken glass, splinters, nails, sharp implements, and the like.[5]

Although this is a survey of accidents to the public in general, accidents in the school gymnasium and auxiliary surroundings should be placed in a similar classification.

Injuries from accidents caused by slippery or poor floors are numerous. Floors with rough, uneven, raised or loose boards cause an uneven surface with raised edges or bumps to stumble over. As a result of the fall, the child receives bruises, sprains, and possibly bone fractures. Floors which are slippery due to highly polished surfaces, waxed or oiled, and upon which water or liquids may have been carelessly spilled, cause a maximum of slipping and sliding,—the injuries resulting being bruises and "brush" burns from which there is always the danger of infection if not more serious results. Floors of unsuitable composition or materials, such as rubber which is too slippery or linoleum which has the same characteristic, may cause bad twists, sprains and bruises; and floors with broken boards, boards with protruding nails or splinters or other jagged surfaces, cause falls and flesh punctures; wounds which may become dangerously infected.

Many of these accidents may be prevented by installing floors of proper materials. No part of the floor should ever be in disrepair, with loose boards

5. Statistical Bulletin of the Metropolitan Life Insurance Company, Vol. 18, No. 9, Sept., 1937.
4. The Medical Problem of First Aid by Robert Kennedy. Bulletin of the New York Academy of Medicine, Feb., 1937.
3. "Heath and Safety in the New Curriculum," E. George Payne and Louis C. Schroeder, M. D.

or any of the other above characteristics which might lead to injury. Every portion of the floor should be well lighted, with no dark corners or shadowed parts. The floor must be kept clear of equipment, or papers upon which a player might slip, and of loose balls over which a person might stumble.

The walls of the gymnasium should always be taken into consideration when an accident prevention study is made. They should not be constructed of rough material, although brick is the most used facing material for the inner walls, while tile, glazed brick, and plaster are also used.[6] The trend of the moment seems to be in favor of glazed brick. If the walls are rough, severe burns and bruises may be received from them. They should be well padded and if this is impossible, care must be taken that no games are played which necessitate having boundary game lines close to the wall. For example, basketball backstops should be from eight to ten feet away from the wall so as to prevent players from running into the end wall. Apparatus on walls should be as much out of the way as possible, with no sharp corners or projections to cause blows on the head or cuts on the face. The nose and fleshy part beneath the eyebrows are the parts which seem to be the most easily injured when there are sharp corners or other projections extending out into the play court. Overhead apparatus should always be high enough to clear the heads of the tallest players, in order to avoid severe blows to the head and face. It must be carefully secured in place when not in use, so that vibrations or jarrings will not loose it, causing it to crash downward injuring players beneath. Temporary support of apparatus should be carefully tested in order to prevent any giving away under the weight of a player or performer.

Heating equipment, such as radiators and setam pipes should be at least seven feet from the floor or caged in or padded with asbestos so that burns will not result if a player runs up against them. Because of their metal composition, it is wise to cover them with padding which will prevent abrasions and more severe complications.

All storage rooms and equipment should be well lighted and in good order. Carelessly piled equipment often causes falls which result in serious ailments. All stairs and steps should be of firm, sound construction, well lighted, and with handrails to prevent any slipping or falling. The treads should be wide enough for the whole foot to stand upon, so that in descending the weight may not be thrown off balance with the person falling forward. The treads should also be constructed of some material which has the tendency of suction.

6. Trends in Physical Education Facilities and Gymnasium Construction. Report of the Committee on Construction and Material Equipment. Research Quarterly, American Physical Education Association, Vol. I, No. 2, May, 1930.

All electric light switches, fixtures, fuse boxes, etc., should be suitably encased and locked so that there will not be accidents resulting from students handling them, and all lights, bulbs, fixtures, etc., must be protected so that no stray ball or flying piece of apparatus can cause their breakage and shower broken glass upon players. Overhead skylights and windows should be screened or protected to avoid bits of broken glass from cascading down upon the players themselves, or upon floor or equipment where they will later come in contact with the bodies of players. Nothing is more painful, and harder to remove from a person, than a bit of glass which has been rubbed into the tissue. Oftimes the result of such an injury is more serious than is expected.

One of the best preventatives for accidents in the gymnasium is that of supervision.[7] Constant supervision, good leadership and good officiating play a large part in cutting down the injuries resulting from rough-housing, unsupervised play, daredevil tactics, and the like. Not only is strict supervision in the gymnasium necessary at all times, but also the careful supervision of children hurrying to and from it; there should be no mad rushing up and down stairs, or congregating on turns or landings.

Many injuries result from unforeseen incidents and therefore are almost unpreventable accidents. Included in this grouping are accidents such as result from a baseball bat slipping from the hands of a player, or a batter swinging the club into the catcher. In the case of the former, the injury resulting is usually in the area of the face and head,—usually a severe gash or blow on the head. In the latter case, unconsciousness is often the result caused by blows on the head. The cure here seems to lie in the securing of the lightest and softest equipment plus careful playing and officiating. There has recently been patented a new indoor bat, rubber covered, which may prove instrumental in cutting down some of these injuries.

In the shower rooms, we have again the problem of wet, slippery floors, sometimes with carelessly forgotten soap adding to the hazards which cause bad falls, resulting in bruises, sprains and burns. Some schools have a board rack upon the main floor over which the players walk to and from the showers. Liquid soap, instead of the bar type, will eliminate the soap hazard, as the water from the showers carries away the slippery element from the floor. Common, exchangeable body brushes are dangerous, as persons and players are susceptible to infection and some are sure to have an infection which may be pased on through the medium of soap or brush.

Valves controlling hot water in shower rooms should never be exposed so that a student may carelessly adjust them. They should be under the direct control of the persons in charge, so that no burns nor shocks may cause the students harm. The shower controls should never be in the main

7. Safety and Health Education in Secondary Schools, Frank S. Lloyd. National Bureau of Casualty and Surety Underwriters, New York, 1933.

shower room where they can be adjusted by students. Also, as the shower rooms are heated to a high degree of temperature, it is often necessary to have many steam pipes in evidence. These, as well as any hot water pipes, should be high up or well padded in order to prevent burns. All electric light switches should be well insulated so that no electric shocks, made more dangerous by the dampness of the shower room, can be received.

Porcelain faucet handles when improperly made constitute a real danger to the user as a sharp blow such as might be given to open or close a stubborn or leaky faucet is ample to shatter the porcelain and the sharp glass-like splinters usually cause severe palmar injuries, not merely surface injuries but deep wounds in which nerves and tendons are affected. This may be prevented by using brass or chromium plated handles. Porcelain handles with metal throughout the length of the handle are the safest of porcelain handles.[8]

The swimming pool presents the same problem of slippery floors, coupled with the dangers of the diving board. The latter must be covered with a rough material such as burlap or matting which will prevent slips. Not only is the covering important, but the width and thickness is a means of prevention. The board must be frequently examined for cracks and splits as the cloth covering and the board itself absorb much moisture, causing rot. Divers should be taught the correct procedures and should always practice care in diving, as oftimes, when thrown off balance, a severe back or neck injury may be sustained.

The bottom of the pool must be kept free of foreign objects, which, if stepped on or if rubbed against the body, may cause cuts and abrasions. The pool and the surrounding tile should be scrubbed frequently so as to prevent the accumulation of substances giving rise to slippery surfaces or edges. Many a swimmer has suffered falls due to the lack of cleanliness of the pool itself. Those responsible for the cleanliness of the pool also have some responsibility for the safety of the users of the pool. Temperature thermometers with glass accessories or other breakable parts, must be carefully checked, as injuries may result from the broken glass, porcelain, or sharp metal parts. If water balls are used in the pool, all glass objects such as windows, skylights, lighting fixtures and the like must be well protected and screened to prevent shattering of glass which may find its way into the pool.

The teaching of life saving and artificial respiration is a means of keeping an accident from being a fatality if a swimmer, for any reason, is too long under water.

As in the gymnasium, strict supervision plays an important part in the pool—preventing injuries; rowdiness, ducking, pushing, throwing of objects, running on the edge of the pool where it may be slippery, careless jumping

8. Porcelain Faucet Handles. Harold Maloney, Journal of American Medical Association, Vol. 103, No. 21, Nov. 24, 1934.

into the water—all cause accidents resulting in injuries of all types. Jumping upon another swimmer may cause head-on collisions, resulting in skull fracture, or at the least bad cuts on the head, or a body shocking blow. Student swimmers must not be allowed to dive in the shallow end of the pool, where a fractured skull or displaced vertebra may occur. Non-swimmers must keep out of the deep end of the pool, as they are not able to take care of themselves with the same rapidity and freedom that characterizes good and experienced swimmers. The poor swimmer may suffer grave results if he "steps out of his class."

The foot tub for antiseptics, enemy of athletes' foot, has its bad points also. The antiseptic solution, plus the rubber surface, leads to slipping. The edges of the tub often catch feet, hurling the person forward. When a person steps into the tub with any force of his body, there is a chance of the whole tub moving, causing a fall. When a swimming instructor has taught his group to stand and walk in the shower room and the surrounding surfaces of the pool, he has eliminated a large percentage of the accident expectancy.

From the discussion of the causes of accidents in gymnasium, the injuries resulting from them and how they may be prevented, we find that the injuries most frequently sustained are muscle injuries from blows and strains, sprains, bruises, floorburns, cuts and scratches, bumps, and heat burns, black eyes, nose bleed caused from blows or bumps, with but occasionally a broken bone or dislocation.[9]

Medical supervision is most important in indoor athletics. While few cases of athletics injuring the heart are to be found, a heart previously affected by some condition or disease may be injured by strenuous activity.[10] Therefore, all students participating in gymnasium work should first have a thorough medical examination;—this in many cases may be the means of preventing serious, possibly permanent physical disability. All children should be carefully examined to determine if they have the necessary strength for apparatus work. This precaution will prevent many bad falls, sprains, bumps, and fractures.

First aid equipment should be instantly available for the care of injuries sustained. The injury should be quickly and carefully diagnosed, the patient being kept as quiet as posible until the trouble is located. If wounds are suspected, rip the seams of the clothing. In cases of prolonged or violent bleeding, apply a tourniquet only if all other means fail, and loosen it every fifteen minutes to prevent gangrene.[11]

---

9. Safety in Education in Secondary Schools, Frank S. Lloyd. National Bureau of Casualty and Surety Underwriters.
10. The Heart of an Athlete, Peter V. Karpovich, M.D. Scholastic Coach, Feb., 1935.
11. The Medical Problem in First Aid, Robert Kennedy. Digest in Journal of School Health, Sept., 1937.

For the more minor scratches and cuts, first aid treatment consists of immediate cleansing and the application of a recognized antiseptic. If necessary apply sterile gauze and bandage to keep clean. Floor burns are treated in a similar manner.

More acute strains result about the ankle than near any other joint. These strains should be treated as any other joint where ligaments are torn. Allow sufficient rest in order that complete repair may take place before the ankle is put back into active use again. This active use of a strained muscle allows the person to be in commission earlier than if it were immobilized. Nevertheless, the entire efficiency is not reached as quickly as when the joint is given sufficient rest.[12]

The treatment of sprains must aim immediately to reduce the swelling. A cold compress applied at once aids in the reduction of swelling. Absolute rest for a period is most important.

Muscle tissue is injured either by a direct blow from without or by internal strain. Following injury, the muscle undergoes three periods of change,—exudation, absorption, and regeneration.[13] The treatment consists of applying cold applications immediately, rubbing with a gentle kneading movement until the cold can be applied. This tends to prevent internal hemorrhage, and it is the hemorrhage exudate which delays or prevents healing.[14] The next stage of treatment consists in placing the muscle in a position where it will not be irritated by any action of the antagonistic muscles, and applying heat, in the form of infra-red radiation or diathermy, which relaxes the muscle spasm and increases absorption. The third step, to restore normal function, is aided by massage and exercise.

Bruises which are slight need no other treatment than to be washed clean. For severe bruises, apply very hot or very cold water to ease the pain and prevent swelling. Black eyes may be bathed with hot water and gently massaged to aid circulation. Nose bleed is treated by loosening the collar and holding the head erect while cold water is applied to the back of the neck and to the bridge of the nose.[15]

When a fracture is suspected, a physician should be called at once. If it is necessary to apply splints, use a well padded support.

In more serious or painful injuries, the victim may feel shock. Try to keep the patient from seeing his own injury, especially any bleeding. Place the patient on his back with his head low, and rub the limbs toward the body after applying heat to the body.

---

12. The Prevention and Treatment of Athletic Injuries, George Bennett. American Physical Education Review, May, 1925.
13. Muscle Injuries, Clifton W. Henson, New York State Journal of Medicine, Vol. 37, No. 4, Feb. 15, 1937.
14. Athletic Injuries, G. G. Deaver, Journal of Health and Physical Education, Vol. 6, No. 2, Feb., 1935.
15. Safety First for School and Home, Harriet E. Beard. Macmillian Co.

Dislocations, like fractures, should be immediately placed in the hands of a competent physician. Shoulder dislocation, for which the treatment seems so simple, is apt to develop into a most serious injury if not properly cared for. Because the dislocation is often so easily reduced, usually insufficient time for rest is allowed for the ligaments to heal,—the result being that the slightest strain later causes a second dislocation. This second dislocation produces less symptoms than the first, and again, if the ligaments are not given the proper period of rest, another dislocation will appear. The continued recurrence leads to a permanent weakness,—therefore, it is important that the ligaments be given plenty of time to rest and to heal properly.[16]

Let me again emphasize the importance of supervision and medical guidance in the prevention of accidents in the physical education department. Medical examination will often point the way to avoidance, not only of the dangers of injuries, but of permanent disabilities and even of fatalities. Strict supervision will assist in instilling in the minds of children the advisability of reasonable precautions and sensible awareness that there is a *right* way to conduct proceedings that will minimize dangers of accident. Children who have impaired vision should be made to see that removing glasses to indulge in activity may be only courting danger. If vision is seriously impaired, so that glasses are needed during play, the heavy steel leather covered frames should be worn. With the efficiency of sight lowered, children may sustain many injuries caused by accidents resulting from lack of vision. A wholesome respect for safety precautions should be instilled in the mind of every child; not fear, but sensible procedures and habits that make for the safety of the individual and of those about him.

16. The Prevention and Treatment of Athletic Injuries, George Bennett.

BIBLIOGRAPHY

PERIODICALS:

Health Bulletins for Teachers, Metropolitan Life Insurance Company

"Lighting at School and Home," Vol. 8, No. 3, Nov., 1936.
"Safety in the Home, School and Community," Vol. 8, No. 6, Feb., 1937.
"Cleanliness," Vol. 8, No. 7, March, 1937.

Hygeia

"Is Your Class Room a Safe Place for Play and Work?" Nov., 1936.
"Safety Problems Through the Years in the Boston Public Schools," Oct., 1935.
"School Health Policies," Beaver, W. W., Sept., 1935.
"If You Had an Accident," Kennedy, R. H., Nov., 1935.

Statistical Bulletins, Metropolitan Life Insurance Company

"America's Loss Through Fatal Accidents in 1937," Vol. 18, No. 12, Dec., 1937.
"How Men Get Hurt," Vol. 18, No. 9, Sept., 1937.

Journal of Health and Physical Education

"Athletic Injuries," Deaver, G. G., Vol. 6, No. 2, Feb., 1935.

Research Quarterly of the American Physical Education Association

"Trends in Physical Education Facilities and Gymnasium Construction." Report of the Committee on Construction and Material Equipment, Vol. 1, No. 2, May, 1930.

Journal of School Health
"The Medical Problem in First Aid," Sept., 1937.
New York State Journal of Medicine
"Muscle Injuries," Vol. 37, No. 4, Feb. 5, 1937.
Education
"Body Building for Athletes," Marling, W. J., Jan., 1936.
Science
"Injuries to Athletes"
"Childhood Accidents," Aug. 21, 1936.
Elementary School Journal
"Regulations Pertaining to Health, Hygiene and Safety in City School Systems," Shanner, C. R., Dec., 1935.
Scholastic Life
"Safety and Health for the School Year," Oct., 1937.
American Physical Education Review
"Prevention and Treatment of Athletic Injuries," May, 1925.

TEXTS:

Lloyd, Frank S., "Safety in Athletics: the Prevention and Treatment of Athletic Injuries," W. B. Saunders, 1936.

Lloyd, Frank S., "Safety in Physical Education in Secondary Schools," National Bureau of Casualty and Surety Underwriters, New York, 1933.

Beard, Harriett, "Safety First for School and Home," Macmillian Co., 1924.

Guilick, L. H., "Emergencies," Ginn and Co.

Payne, E. G. and Schroeder, L. C., "Health and Safety in the New Curriculum," American Viewpoint Society, Inc., New York, 1927.

Williams, J. F. and Hughes, L., "Athletics in Education," W. B. Saunders, Philadelphia, 1920.

Williams, J. F. and Nixon, W. E., "The Athlete in the Making," W. B. Saunders, Philadelphia, 1932.

Schrader, Carl, "Discussion of Athletic Injuries," American Student Health Association, Proceedings, 12th Meeting, 1931.

* * * * *

Commission to Study Crippled Children.— A study of the care of physically handicapped children was launched recently with the appointment by Mayor La Guardia of a special commission with Dr. Philip D. Wilson, surgeon-in-chief of the Hospital for Ruptured and Crippled, as chairman. Dr. Vernon W. Lippard, associate attending pediatrician to the New York Hospital and instructor in pediatrics at Cornell University Medical College, has been selected to direct the survey, which will continue until July 1, 1939, and has obtained leave of absence from his other duties for that period. The first step will be the establishment of a registration bureau in the headquarters in the Lower West Side Health Center, 303 Ninth Avenue, Manhattan. The survey will analyze the type of care a child receives when once referred to a hospital or organization; it will also determine the extent of duplication of services and whether continued service is given to the handicapped child until he reaches maturity. The material thus gathered will be used in developing a program for proper physical, mental, educational, and vocational care of these children, and the commision will have the right to recommend changes or revisions in the present set-up which may be considered necessary.—The Journal, A.M.A., July 16, 1938, p. 262.

THE CONTROL OF FOOTBALL INJURIES IN HIGH SCHOOL

JAMES T. O'SHEA

North Junior High School, Niagara Falls, N. Y.

Football, which is probably the most interesting of all high school sports in the United States, at least from a spectator's point of view, demands a close analysis of its fatalities and injuries in order to promote a program which will keep the best values inherent in the game and at the same time remove some of its hazards.[1]

Football leads other sports in injuries.[2] In 1931 the ghastly toll of 48 player deaths centered the attention of the nation on this school activity with the demand that something be done about it in order to insure greater safety of players engaged in football. And something was done—the flying wedge, flying block, and flying tackle were promptly barred. Players once down were refused permission to struggle to their feet and run again. Penalties were slapped on players who piled on a man after he was grounded. Vigorous use of the hands and fists in the line were ruled out. Groups like the Federation of High School Athletic Associations drew up stringent standards for equipment; manufacturers religiously met specifications. But, in spite of such efforts of the rule makers, 38 were killed in 1932, 44 in 1933, 36 in 1934 and 48 in 1935. In 1931 and each year since, 100,000 players were hurt badly enough to require hospitalization. Doctors' bills for the injured have averaged $1,000,000 a year.[3]

A certain amount of bruises and breaks are the natural heritage of any sport. What must be done is to cut to the minimum all avoidable accidents; accidents caused by faulty equipment, coaches who place their ambition to win over the safety of their players, and sport crazy parents who pay far too little attention to the physical fitness of their boy to engage in sports. And many authorities, such as Mal. Stevens, Frank Lloyd, and Dr. Eastwood, see no let up.

F. P. Neverman in an article which is a reply to Professor Floyd Eastwood on the dangers of high school football, states that he, Dr. Eastwood, is in error when he published figures from a survey to prove that high school football was the most dangerous of all. It is true that the greatest number of injuries and fatalities are reported from the high school ranks, but if these figures are considered in relation to the number of players, then it will be quickly seen that the injuries in H. S., figured on a percentage basis, are far less than those of other groups.[4]

---

1. "Reducing Hazards and Increasing Values of Football in High School." Floyd R. Eastwood, Bulletin of New York State Public H. S. Athletic Assn., Vol. VIII, No. 7, Nov., 1936.
2. "Safety in Athletics." Lloyd, Deaver, and Eastwood, W. B. Saunders Co.
3. "No Holiday for Death." Bob Considine, Good Housekeeping, Oct., 1937.
4. "Wisconsin Replies to Professor Eastwood." F. P. Neverman, Scholastic Coach, Vol. 4, No. 6, Feb., 1935.

Percent of Players	Percent of Injuries
80% high school	44%
7% college	14%
10% sand lot	28%
3% athletic club	14%

In a study of footbal injuries conducted during four consecutive years at Cranbrook School, where 80% of the average school attendance of 200 boys play football, some interesting data was obtained. A careful analysis was made from notes and careful observation taken each afternoon and evening during the football season. The decided reduction of injuries—

243—1930 112—1931 68—1932 75—1933

was considered to be the result of a careful check-up and improvement of certain styles of play. Certain training and practice procedures and, especially, the examination of causes for special regional injuries in respect to anatomic strength or vulnerability of the part, the character and direction of the force inflicting the injury, and the distribution of padding in the uniform. The increase in injuries in 1933, which was the result of a greater number of knee injuries, may have been caused by that season's style of play which featured lateral passes, double reverses, and sweeping lateral runs.[5]

Therefore, I believe an analysis of these training and practice procedures, and a consideration of the regional injuries and their control, should prove valuable to anyone interested in the future of football.

Before a boy engages in football, he should have a thorough medical examination and a similar examination at the end of the season. This examination should include a detailed medical history with emphasis on past injuries and illnesses, and if possible a plate of the heart and a steroscopic X-ray of the chest. It is also important to have a good eye examination as much athletic ability would be increased by the correction of defective vision. Postural examination is also important. Nor should the care of the player cease with this attention. Throughout the season, in so far as possible, a careful watch of diet, elimination, weight, proper clothing after shower and exposure, will make for greater personal fitness and athletic ability.

Locker rooms and their equipment should be as completely equipped as is financially possible. The rooms should be well ventilated, roomy, clean, and well laid out, with rooms for the various activities conducted there, and ample storage for equipment. Players should have their own equipment to avoid the dangers of impetigo. Athlete's foot should be guarded against by the use of a solution of one-half per cent sodium hypophosphite. And many other skin diseases and irritations such as result from profuse sweating, for example, trichophytosis and bromidrosis, must be treated and controlled.

5. "Analysis of Football Injuries." Thomas N. Horan, Journal of the American Medical Association, Vol. 103, No. 5, August 4, 1934.

There is some difference of opinion as to the choice of warm or cold showers. Tepid showers will insure more thorough cleanliness, and cold showers need not follow unless the water previously used has been warm enough to open pores or start sweating.

Players should be allowed an uninterrupted period of not less than ten minutes between the halves for *complete* relaxation, both mental and physical.

The field should be well drained, with a good stand of grass. There should be sufficient space left on the side lines for the man tackled or blocked out of bounds, with all equipment, benches, etc., well removed from the field. Side line markers should be made of soft flexible material. Goal posts, although ten yards from the goal line, should be padded. Where possible, the same field should not be used for games and as for practice, since the field surface should be kept as intact as possible. When grass surface is not available for practice, sawdust pits should be used for blocking, live tackling, and individual assignment work. When the playing surface becomes worn, the field may become dusty; watering it will decrease both respiratory infections (from dust) and injuries (from hard surface).

Players who have injuries or infections owe it to parents, coaches, and the team, to keep the trainer or physician correctly informed, and no player suffering even a minor injury should be allowed to play. Fatigue is responsible for many injuries on the football field. Players tiring during the closing periods of play should be removed. It has never seemed fair that a team with only a few replacements, should be forced to compete with one with many, fresh replacements being the ammunition necessary to wear the smaller team down.[6] Therefore, teams should be matched for age, weight, and size of squad. Freshmen or players out for the first practice should not be allowed to scrimmage against a varsity team—until late in the season at least.

There should be limbering and warming up exercises before each game, which is an important part of conditioning, and a relatively long period of training before scrimmages are begun, is essential to the diminution of accidents, both as to number and severity. There should be daily weighing of players and the removal of boys obviously tiring. There should be careful utilization of all normal intervals, as well as time out periods, for the purpose of recuperation.[7] As most of the accidents occur during the early part of the season with a steady decline after October 12th[8], all high schools should have at least three weeks preseason training before the first game. Forty-four per cent of all football accidents and 56 per cent of days lost occur before the competitive season, probably due largely to short preseason training.[9]

---

6. "No Holiday for Death." Bob Considine, Good Housekeeping, Oct., 1937.
7. "Analysis of Football Injuries." Thomas H. Horan, Journal A. M. A., Vol. 103.
8. "Reducing Hazards and Increasing Values of Football in High School." Floyd Eastwood, Bulletin of the New York State Public Schools A. A. Vol. VIII. No. 7, Nov., 1936.
9. "Safety in Athletics." Lloyd, Deaver, and Eastwood, W. B. Saunders Co.

Boys under 16 years of age generally should not engage in football.[10] Also boys in the early teens are completing important periods of growth and development, and it has been observed that competitive games during that period cause physchological disturbances accompanying highly competitive play. From the observation of groups of this age engaging in competitive play, it was found that they gained less in height, weight, and lung capacity than those of similar groups who had regular gym work but engaged in no competitive sports.[11]*

It is possible to decrease exhaustion resulting from strenuous games by use of salt given by mouth. Recent measurements of specific salt balance show that a 0.6% solution of sodium chloride is recommended for the drinking supply, particularly on sultry days or in hot climates.[12] Players should not use a common drinking cup, but should be provided with paper cups.

These training practices and game procedures are but a brief outline of the precautions to be observed by every trainer or coach no matter how small his squad or how limited his equipment. Volumes might be written on the fine points of quarters, equipment, daily care and conditioning of the players, their diet, additional health precautions, and the like. But the faithful adherence to the general points here outlined will do much toward preventing low efficiency of players and injuries on the playing field. Years of experience in preparing athletes for contests have proved that training rules are absolutely necessary. Certain facts apply to all training rules. High school boys should regularly have nine hours' sleep during the playing season, and food is a real factor in training. It should consist of coarse breads, meats, vegetables, eggs, fruits, and milk, and should reduce fats and pastry.[13] (Note: High quality fruit, preserves and jams make an excellent addition to training diet. They are quick fuel.—Ed.)

First aid equipment should be always instantly available as well as the services of a physician, since the responsibility for the treatment of injuries should not be laid upon the coach.

"Protective measures initiated as methods of reducing football injuries demand that the coach know the body areas which are being most frequently and severely injured."[14] Leg and foot areas accounted for 43% of the in-

---

10. "Reducing Hazards and Increasing Values of Football in High School." Floyd Eastwood, Bulletin of the New York State Public Schools A. A. Vol. VIII, No. 7, Nov., 1936.
11. "What Is Too Much Exercise?" Floyd A. Rowe, Scholastic Coach, Vol. 4, No. 6, Feb., 1935.
* Soccer is a much better team game for young adolescents than is football. Ed.
12. "Analysis of Football Injuries." Thomas N. Horan, Journal of American Med. Assn., Vol. 103, No. 5, Aug. 4, 1934.
13. "Training for Athletics and Health." Alfred C. Parker, Hygeia, Nov., 1933.
14. "Safety in Athletics." Lloyd, Deaver and Eastwood, page 45.

juries, knee and ankle injuries being the most frequent, head and neck 15%, shoulder 13%, arms and hands 12%, pelvis and thigh 9%, thorax 3%, back 3%, and abdomen 1%. These are general football statistics. The percentage for high school competitors would be slightly different.

"It is interesting to note in this connection that the injury rate to backs was high, the ends, tackles and guards, with the centers last being ranged in order of frequency. If we consider the activity in which the boys were engaged at the time of injury we discover that 37.9% of them were tackling, 20% were being tackled, 17% were blocking and 8.2% were being blocked. These figures indicate clearly that tackling is a dangerous activity, and point to definite necessity for a thorough coaching in the fundamentals of tackling and blocking, and emphasize the need for more protective covering equipment.[15] (These figures are based on 1935 football season.)

In "Safety in Athletics," by Lloyd, Deaver, and Eastwood, the percentage is as follows: 18% of accidents occurred while blocking, 17% tackling, 11% carrying the ball off tackle, around end or line plunging, 7% when player was blocked. The most serious injuries occurred when player was blocked or tackled, rather than when he executed the block or tackle. From blocking, the most frequently occurring injuries were leg and foot; strains, sprains, or wounds; fractured, sprained or dislocated shoulder; often strained, or sprained pelvic areas and thigh injuries. Head and neck injuries usually consisted of wounds or of slight concussions.

"When we chart the football field for the positions in which the injuries occurred, we find that the zone from the opponent's goal to the 20-yard line was responsible for 14.5% of the injuries, the 40-yard to the back 20-yard line 22.5% of the injuries, while the last or connecting zone had 4.8% of the injuries. The inference, of course, is that the greatest amount of playing took place in those zones where the injuries were most prevalent. Approximately 55.6% of the injuries were due to the nature and the character of the game. Lack of leadership, that is, indifferent coaching, poor judgment in allowing boys to play while injured, and making poor substitutions, unnecessary roughness and poor officiating resulted in 20.4% of the injuries. Poor equipment and improper playing conditions were mainly responsible for 24% of the injuries.[16] (Based on 1935 season.)

"Certain factors foreign to the accident itself many times influence the accident incidence in a given school"[17] The following procedures are recommended. When enforced the number of accidents and days lost per 1000 exposures will be lowered. At least 6-8 days of pre-season training before

15. "Football Injuries and Their Causes." F. R. Wegner Bulletin of the New York State Public School Athletic Assn., Vol. VIII, No. 6, Oct., 1936.
16. "Football Injuries and Their Causes." F. R. Wegner Bulletin of the New York State Public School A. A., Vol. VIII, No. 6, Oct., 1936.
17. "Safety in Athletics." Lloyd, Deaver, and Eastwood, page 65.

the first scrimmage, an average of not more than 30 minutes devoted to scrimmage each day, medical examination before pre-season training, and the athletic association to pay all of the costs incurred in the treatment of injuries.[18]

Exercises for conditioning athletes have been carefully worked out. They should be given not only during the football season, but throughout the year. An excellent list of exercises and illustrations is given by Stevens and Phelps in their book "The Control of Football Injuries," pp. 29-36. As has been previously stated, the proper warming up before practice or game is extremely important. "It is a well known fact that games are played better, more skillfully and with less injuries of any type if this warming up process has been carried through than if the practice or game is started cold."[19] A carefully worked out system of warming up should be developed by each athlete to suit his needs. In general, this should be a gradually increasing set of activities that should increase the heart rate, not too much at a time, until the athlete feels himself at a peak. At the peak of warming up, which should not be continued so long as to tire and to waste energy, a man should feel a slight beginning of sweating and a definite increase in muscular power.

As a part of the efforts of coach, teacher, and administrator to cut down injuries, there should be increased emphasis on drills for blocking, better protective equipment* to cover the bony regions of the hip, and players should be taught to block against the softer parts of the body rather than to strike the hips or thighs directly. There should be an increase in the amount of time given to tackling practice during the pre-season period, and a tackling dummy should be used instead of "live bait."[20] F. P. Newman recommends the teaching of a rolling tackle.

Improved officiating with strict observance of rules and penalties for the flying block and other old time tactics is urged.

Injuries may be divided into six classes: Skin and subcutaneous tissue injuries which are abrasions and cuts of the skin from which there is danger of infection; muscle injuries which are caused by a direct blow on the muscle tissue or internal strain; nerve injuries which most frequently occur as a complication of sprains, or actual nerve contusion; tendon injuries which occur when the muscle fibers are torn from the tendon, rather than a tear of the tendon itself; ligamentous tears, which are caused by sufficiently great force to bring about abnormal mobility of a joint, a tear of the ligament resulting, and bone injuries which consist of bone bruises, and fractures.

---

18. "Safety in Athletics." Lloyd, Deaver, and Eastwood, page 65.
19. "The Control of Football Injuries." Stevens and Phelps, A. S. Barnes & Co.
* Insufficient funds are the usual cause of inadequate equipment. When a school can equip only forty players, and one hundred turn out for early practice, we must expect a huge number of pre-season injuries. Ed.
20. "Safety in Athletics." Lloyd, Deaver, and Eastwood.

The most frequent injuries with brief suggestions as to the equipment which will help to prevent them follows:

Ankle Injuries—Taping or ankle bandages, two-inch ace bandaging.

Finger and Hand Injuries are due to the spreading of thumb and fingers in tackling and straight arming. Proper spacing and careful instruction by the coaches as to the proper use of the hands helps avoid many of these injuries.

Muscle Injuries are not easily prevented as they are usually due to a direct blow. Two special groups should be carefully considered: First, muscles passing obliquely, downward from the neck to the shoulder which are injured in tackling and blocking; to prevent injuries in this region the harness of the uniform should be fitted and adjusted to each boy and the padding inlaid with extra layers of sponge rubber; second, the muscles of the thigh, especially the anterior femoral group, which should be protected by elastic inserts to hold the padding in place. Shoulder injuries are usually caused by a fall on the shoulder point, or the muscles of rotation of the arm are sometimes pulled loose from their attachment by violently resisted motion. Well padded, carefully fitted, softly kneaded and oiled leather cups over the turn of the shoulder are recommended as a great help in lessening these injuries.

Head injuries of the scalp wound type are relatively infrequent as the leather headguard is good protection. More concussions occur in football than is generally realized. While head gear is not complete protection for this type of injury it is being constantly improved, and there should be insistence on wearing securely laced, well-fitted headgear with the chin strap in place.

For the prevention of spine and back injuries, padding should extend well up toward lower rib margin and over the iliac crest, with increased padding on thin boys.

The most bothersome knee injury is the tear in the internal lateral ligament. Use six-foot two-inch elastic bandage or other special bandage to support the joint; knee pads reduce knee abrasions.

The face, feet, and chest wall are comparatively unprotected. Nose guards and padding could be used, but they are cumbersome and impracticable.

Players should be taught the value of balance. "Balance is the most important feature of body control in any athletic pursuit. In football it is doubly important because a mere being off balance from the ball of the feet up, may mean a penalty to a player of injury through his own awkwardness and inexperience."[21]

The consideration of these and hundreds of other items still falls far

21. "The Control of Football Injuries." Stevens and Phelps.

short of accomplishing as great a reduction in injuries as we could wish. Moreover, all efforts toward reduction are doomed to partial failure until one great important change has taken place—public opinion regarding the game. Until the public is educated to regard good coaching not so much by the number of victories as the small number of injuries of the team, there will remain many unnecessary injuries. Coaches are so driven to win games, so pressed upon and insulted by public opinion, so quickly out of a job as the result of a season poor in victories that proper care is almost impossible.

BIBLIOGRAPHY

Eastwood, Floyd R., "Reducing Hazards and Increasing Values of Football in High School," Bulletin of New York State Public High School Athletics Association, Vol. VIII, No. 7, Nov., 1936.
Lloyd, Deaver and Eastwood, "Safety in Athletics," Frank S. Lloyd, Ph.D., George G. Deaver, M.D., Floyd R. Eastwood, Ph.D., W. B. Saunders Co., Phila., 1936.
Considine, Bob, "No Holiday for Death," Good Housekeeping, Oct., 1937.
Neverman, P. F., "Wisconsin Replies to Professor Eastwood," Scholastic Coach, Vol. 4, No. 6, Feb., 1935.
Horan, Thomas N., "Analysis of Football Injuries," Journal of the American Medical Association, Vol. 103.
Parker, Alfred C., "Training for Athletics and Health," Hygeia, Nov., 1933.
Wegner, F. R., "Football Injuries and Their Causes," Bulletin of the New York State Public School Athletic Association, Vol. VIII, No. 6, Oct., 1936.
Stevens and Phelps, "The Control of Football Injuries," A. S. Barnes & Co., New York, 1933.
Editorial, Hygeia, Sept., 1933.
Williams and Nixon, "The Athlete in the Making," W. B. Saunders Co., Phila., 1932.
Considine, Bob., "Death Rattle on the Gridiron," Sept., 1936, Good Housekeeping.
"Making Football Safe," Woman's Home Companion, Vol. 59, Nov., 1932.
Epler, S. E., "Safer Football," School and Society, 46: 146, July 31, 1937.
"Football and Health," Literary Digest, 114:36, Oct. 8, 1932.
Wegner, F. R., "Athletic Protection Plan and Its Future," Bulletin of the New York State Public High School Athletic Assn., Vol. VIII, No. 8, Apr., 1937.
Lloyd, Frank S., "Safety in Physical Education in Secondary Schools," National Bureau of Casualty Underwriters, New York, 1933.
Karpovich, Peter V., "The Heart of the Athlete," Scholastic Coach, Vol. 4, No. 6, Feb., 1935.
Rowe, Floyd A., "What Is Too Much Exercise?" Scholastic Coach, Vol. 4, No. 6, Feb., 1935.

* * * * *

Swimming Pools.—Covering all phases of the construction, maintenance and operation of swimming pools with respect to sanitation and safety, a new sixty-page booklet, liberally illustrated, has been published and is now available on request from the State Department of Public Health. It was prepared by staff members of the Division of Sanitary Engineering whose resources include special training and many years of experience in matters of pool and beach sanitation.

The law relating to swimming pools is reproduced in the booklet which sets forth the minimum sanitary requirements required of swimming pools by the State Department of Public Health. Practically everything that one might wish or need to know about the design, construction, maintenance, equipment and operation of a swimming pool, except costs, is at least referred to in the booklet.—Illinois Health Messenger, Aug. 1, 1938.

EVALUATION OF DENTAL PROGRAMS FOR CHILDREN*

J. M. WISAN, D.D.S., F.A.P.H.A.
American Society for the Promotion of Dentistry for Children, Elizabeth, N. J.

A study of public health literature will reveal a need of technic for evaluating dental programs. This void applies to measuring community dental programs as well as to attempts to analyze trends in dental health of individuals, communities, and nations.

This discussion will be limited to two points:

1. The chart recently designated as a national chart for group inspections of school children to determine dental needs.

FIGURE I

Dental Inspection Chart for School Children

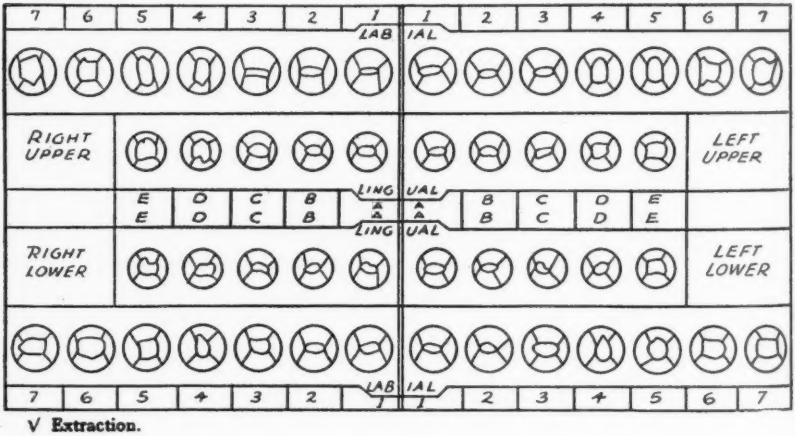
For dentists using mouth mirror and explorer.

Last Name ..... First Name ..... City or County ..... State .....

Date of Examination ..... Age Years ..... Months ..... Sex ..... Color .....

School ..... Grade .....

1. Is dental treatment indicated? Yes ..... No .....
2. Has child ever received dental treatment? None .....
3. Number of teeth which have been filled Fillings ..... Extractions .....
   Deciduous ..... Permanent .....
4. Number of teeth requiring { Extraction / Fillings — Deciduous ..... Permanent .....
5. Number of missing teeth (Extracted permanent teeth only) .....
6. Condition of gums Normal ..... Diseased .....
7. Is orthodontic treatment indicated? Yes ..... No .....


7 6 5 4 3 2 1 LAB
1 IAL 2 3 4 5 6 7
RIGHT UPPER
LEFT UPPER
E D C B LING
E D C B
B C D E UAL
B C D E
RIGHT LOWER
LEFT LOWER
7 6 5 4 3 2 LAB
1 IAL 2 3 4 5 6 7

V Extraction.

2. The Lost Permanent Tooth Index for evaluating dental programs among school children.

* Read before the Child Hygiene Section of the American Public Health Association at the Sixty-sixth Annual Meeting in New York, N. Y., October 5, 1937. Reprinted from American Journal of Public Health, July, 1938.

National Dental Inspection Chart: This Chart (Figure I) is to be used in surveying dental needs of school age children. It is hoped that the designation by the American Society for the Promotion of Dentistry for Children, the American Dental Association, and the proposed sanction of the American Public Health Association, will result in widespread adoption. If this form is used as a basis of dental inspection charts in all local and state dental programs, it will be possible within a few years to make more accurate comparisons and to determine dental needs with greater uniformity.

However, a valid and reliable method for evaluating dental programs is required. The Lost Permanent Tooth Index is suggested for this purpose.

Lost Permanent Tooth Index—How Is It Obtained? The teeth of 12-14 year old children are examined by a dentist. This age group is selected because 28 permanent teeth should be in place, that is, all but the 4 third-permanent molars or "wisdom" teeth. Then, too, 7th and 8th grade conditions indicate the results of more than 6 years of service and/or instruction.

Two items are observed and charted: (1) Permanent teeth requiring extraction. (2) Permanent teeth previously extracted. Both constitute what may be termed "lost permanent teeth."

By using the compiling chart (Figure II) it is possible to obtain:

1. *The number of lost permanent teeth per* 100 *children*—By lost permanent teeth is meant the total of *both* permanent teeth requiring extraction and previously extracted permanent teeth.

2. *The percentage of children with lost permanent teeth*—That is, the percentage of children having permanent teeth requiring extraction and/or previously extracted permanent teeth.

FIGURE II

COMPILING CHART

LOST PERMANENT TOOTH INDEX

City ..... Age of Pupils .....

School ..... Grade of Pupils .....

NUMBER OF CHILDREN EXAMINED	NUMBER OF CHILDREN HAVING PREVIOUSLY HAD								NUMBER OF CHILDREN REQUIRING THE EXTRACTION OF								NUMBER OF CHILDREN HAVING EITHER OR BOTH — EXTRACTED PERMANENT TEETH OR PERMANENT TEETH REQUIRING EXTRACTION	TOTALS
	0 Permanent Teeth Extracted	1 Permanent Tooth Extracted	2 Permanent Teeth Extracted	3 Permanent Teeth Extracted	4 Permanent Teeth Extracted	5 Permanent Teeth Extracted	6 Permanent Teeth Extracted	7 Permanent Teeth Extracted	0 Permanent Teeth	1 Permanent Tooth	2 Permanent Teeth	3 Permanent Teeth	4 Permanent Teeth	5 Permanent Teeth	6 Permanent Teeth	7 Permanent Teeth		

It may be noted that this Index does not evaluate dental programs for *preschool* children. The author is preparing a Lost Deciduous Molar Index for this purpose.

Is the suggested method of evaluating dental programs practical, valid and reliable?

Practicability: The simplicity of the technic and the little time (1 minute or less per pupil) consumed in obtaining the data for this Index would

seem to indicate that this method of evaluating dental programs is practical.

Validity: The White House Conference on Child Health and Protection designated "The retention of the permanent teeth, sound and healthy, functioning adequately and with comfort"[1] as an objective of dental programs.

Inasmuch as this Index shows the number of lost permanent teeth and indicates to what extent the permanent teeth are being retained in sound vital condition, it does measure dental health in accordance with a standard set by an authoritative body.

Figure III shows how the Lost Permanent Tooth Index may be used to compare contemporary programs:

FIGURE III

How the Lost Permanent Tooth Index Enables One to Compare Contemporary Programs

Town A	*Date—October 1937*	*Town B*
70%	7th and 8th grade children with lost permanent teeth	80%
150	Number of lost permanent teeth per 100 children—7th and 8th grades	170

Figure IV indicates how it may be used to measure progress within a community.

FIGURE IV

How the Lost Permanent Tooth Index Enables One to Measure Progress Attained by Dental Programs

March, 1932	7th and 8th grade children with lost permanent teeth	80%
March, 1936	7th and 8th grade children with lost permanent teeth	40%
March, 1932	Number of lost permanent teeth per 100 children—7th and 8th grades	140
March, 1936	Number of lost permanent teeth per 100 children—7th and 8th grades	60

The following conclusions, arrived at by studying the Lost Permanent Tooth Index of 650 communities as obtained from the U. S. Public Health Dental Survey of School Children,[2] indicate that this Index does measure dental health conditions:

1. It was noted that the children in communities of less than 5,000 population had lost fewer permanent teeth than had children in the more populated communities.
2. Negro children had fewer lost permanent teeth than white children.
3. Other conditions being similar, children in communities with well planned dental programs showed fewer lost permanent teeth than those in communities without programs.
4. Children in communities of high economic level had fewer lost permanent teeth than children in poorer communities.

See Figure V for data.

FIGURE V

1. AVERAGES ACCORDING TO SIZE OF COMMUNITY

Population	*Lost Permanent Teeth per 100 Children*
100,000 and over	80.8
25,000-99,999	90.2
10,000-24,999	70.0
5,000- 9,999	75.8
Under 5,000	54.6

2. COMPARISON OF NUMBER OF LOST PERMANENT TEETH AMONG WHITE AND NEGRO CHILDREN

	Lost Permanent Teeth per 100 White Children	*Lost Permanent Teeth per 100 Negro Children*
In 22 cities	51.4	36.6

1. White House Conference on Child Health and Protection: *The School Health Program.* Section III C. New York: Century Co., 1932, p. 101.
2. *Pub Health Bull. 226.* Washington, D. C.: Gov. Print. Office, 1936.

3. Comparison of Number of Lost Permanent Teeth Among Children in Communities Having Dental Programs and Among Children in Communities Not Having Dental Programs

Communities With Dental Programs

	Lost Permanent Teeth per 100 Children
Pontiac, Mich.	19.3
Atlanta, Ga.	26.5
Des Moines, Ia.	41.3

Guggenheim Clinic (New York) Report

	Lost Permanent Teeth per 100 Children
Children entering service early with regular treatment	86
Children obtaining late dental care (10 years or over)	105

Communities Without Dental Programs or With Inadequate Programs

	Lost Permanent Teeth per 100 Children
Camden, N. J.	142
Lyndhurst, N. J.	199
Pittsburgh, Pa.	138.6

4. Comparison of Number of Lost Permanent Teeth Among Children in Communities of High Economic Level and Among Children in Communities of Low Economic Level

High Economic Level	*Lost Permanent Teeth per 100 Children*
Englewood, N. J.	73
Westfield, N. J.	49
Pittsburgh, Pa.	45
Low Economic Level	*Lost Permanent Teeth per 100 Children*
Rahway, N. J.	168
Hoboken, N. J.	156
Garfield, N. J.	169

Note: Above data applied to children 12-14 years.

Reliability: The reliability of this Index was tested by having a number of dentists examine the same children. Uniformity ranged from 85 to 95 per cent—evidence of satisfactory reliability.

Attainable Standards: The question is frequently asked: "What may be considered attainable standards?" Tentatively, it is suggested that attainable standards among white children be set in accordance with economic status. We may reasonably expect that the number of lost permanent teeth per 100 white children of 12-14 years would be:

For Economic Level	*Lost Permanent Teeth per 100 Children (12-14 Yrs.)*
$5,000 and up	0-19
$2,000-$5,000	20-49
Below $2,000	50-70

These suggested attainable standards merit conditional acceptance for the purpose of further study and analysis.

The author believes that including *all* of the following will, in five years, effect results indicated by the suggested attainable standards: (1) educational programs to improve nutritional and dental practice, (2) repetitive dental inspections by dentists using mouth mirror and explorer plus follow-up guidance programs, and (3) preventive dental service programs for underprivileged children with emphasis on pre-school and lower elementary grade children, and treatment provided for older children as well. *Dental service programs based on emergency treatments will not reduce the number of lost permanent teeth.*

Summarizing, the adoption of the National Dental Inspection Chart for School Children will aid all communities to determine dental needs among children with greater uniformity. The use of the Lost Permanent Tooth Index was recommended as a reliable, valid, and practical means of evaluating dental programs among school children.

EDITORIALS

"Homines ad deos nulla re proprius accedunt quam salutem hominibus dando." — Cicero.

This is the first issue of the *Journal of School Health* of the school year 1938-1939. The only proper reason for the existence of the American School Health Association and for the continuance of similar organizations, local, state, and national, is the high purpose of "bearing health to men."

At the risk of seeming to "preach," your editor wishes to emphasize some factors that seem peculiarly important, at the opening of a new school year, in the school health program. During the past year the *Journal* has touched more or less vigorously upon each of these.

Presumably, at the opening of the schools, the sanitary conditions of school sites, buildings, and facilities, and the health of the personnel are as good as they are likely to be unless vigorous immediate effort is made to bring improvement. The school health personnel—doctors, nurses, special teachers, and others, owe it to the children entrusted to them, to the taxpayers who pay their salaries, and to themselves to *know* the exact sanitary conditions. If these be good, let us give thanks and praise, if unsafe or dangerous, let us hammer public and authorities until they are corrected. A thorough sanitary survey would seem to be the first duty. Some of the dangers are mentioned in one of the special articles in this issue.

Undoubtedly we shall again have to meet the insistent demands that every child be in school every day, whether his physical condition makes his presence there safe, either for himself or his associates. Much of this insistence is due to faulty law or to unwise state regulations which base state aid on attendance. Should we not begin to seek a more sensible basis of payment? This editor believes that if the ailing were vigorously *excluded* from school there would result enough diminuition in the spread of infection so that the total days attendance per thousand children would be increased, particularly in the lower grades.

What is our duty regarding the large number of accidents, many of them serious, resulting from football as played in the secondary schools? Some suggestions as to causes and means of prevention are made elsewhere. Energetic steps in the direction of better protective clothing, careful and longer pre-season training, better classification of players as to age,* size, and experience, and more immediate and intensive aftercare of injuries all are important. Probably the greatest improvement would result from

* In Wisconsin in 1935 among 17,000 high school players, boys aged fourteen years made up 7 percent of the group but suffered 24 percent of the injuries.

changes in the type of game played. So long as the majority of secondary school coaches receive most of their knowledge of physical education from playing on a college football team, and their aims and desires look toward the colleges, little may be expected in the way of modifying the present game. There are at least two other possibilities. One mentioned elsewhere, is to drop football—misnamed as at present played—and substitute soccer (which really is "foot" ball) in its stead. A second possibility looms large. In 1934 a game was devised which gives the interest and enthusiasm of the college type of football with most of its dangers eliminated. Played with six instead of eleven on a team, it is much more suitable for small schools. The expense of adequate protective equipment is proportionately decreased, more than proportionately, since both the rules of play and the fewer players make bruising and crushing plays unlikely. With only three players on the line and three in the backfield such plays are well nigh impossible. The result is more kicking and passing. Every player, except the center, is eligible to receive a pass and to run with the ball. The use of this "Six Man Football" is spreading like a prairie fire. Starting from zero in 1934, there were two hundred teams in 1936, one thousand in 1937 and the indications are that there will be at least two thousand in 1938. It demands good training in football fundamentals, and since it is easier to see and to understand the plays, it is hugely popular among the spectators. A smaller playing field—80 yards by 40 yards insted of 100 yards by 53.3 yards—permits them to get closer to the plays. It also has great possibilities as an intramural game in the smaller colleges.

In the February, 1938, issue of the *Journal of School Health*, the very undesirable situation in secondary schools resulting from those schools mimicking the change in basketball rules made by those responsible for the game in college was commented on and the leading abstract further discussed this dangerous change. The May 1938 issue of the Research Quarterly of the American Association for Health and Physical Education carries a brief report on a study made of the increased work thrust upon players by this change.* Whereas under the old rules the distance travelled ranged from 2.25 miles to 2.50 miles, under the present rules the distance travelled ranges from 3.87 miles to 3.97 miles per game. This is an increase of from 60-72% in the distance run, usually at top speed. Have not the secondary schools intelligence and gumption enough to make their own rules; and thus protect the adolescents entrusted to them?

---

* *The Effect of Rule Changes Upon the Distance Travelled by Basketball Players*, Paul J. Fay, p. 136.

The things suggested in this editorial are not easy. To be an honest and successful health officer, in the schools or anywhere else, takes the enthusiasm of apostles and prophets, and the courage of martyrs.

If it be true as Cicero declares that, "In no thing do men approach nearer the Gods than in bearing health to men," perhaps during the ensuing ten months each of us may get a step nearer.

ABSTRACTS

Athletes' Foot.—A few years ago we made a survey of the incidence of athletes' foot in the students of one of our larger high schools. To our amazement we found that over seventy per cent showed definite clinical signs of the infection. Since the most common source of infection is the gymnasium and more particularly the shower bath, our efforts at prevention should be directed to that source.

The fungus epidermophyton belongs to the vegetable kingdom and is very resistant to ordinary heat and cold and chemicals, and tends to live for years in bath mats and floors of shower baths. Our experience teaches us that it is physically impossible to keep the shower bath free from the fungus for we have no antiseptic potent enough to kill the fungus promptly, although in different parts of the country various attempts at prevention have been tried. Solutions of permangate and thiosulphate have been suggested as foot baths after the student leaves the shower. This method has served to reduce definitely the incidence of infection.*

The most effective method of prevention is to keep the skin from touching or contacting the source of infection. This can be accomplished most readily and most effectively by insisting that the student wear rubber slippers when taking his shower. His feet should not be allowed to touch the floor of gymnasium or shower bath. He should be instructed by the school physician and the director of gymnasium to change from his street shoes to his gymnasium shoes, to his shower sandals, back to his street shoes, without allowing the feet to touch the floor. The school nurse should emphasize, also, the importance of developing and maintaining this technique in order to help prevent new infections of athletes' foot.

The periodic examination of students should include the examination of feet, at least at the beginning of the school year. All suspected or proven cases should be sent to the family physician or clinic for special supervision.

The treatment of athletes' foot varies with the stage of infection. In the acute vesicular, or water-blister stage, rest in bed, soaks or compresses with potasium permanganate, sodium thiosulphate, or aluminum sub-acetate are often helpful. In the sub-acute or chronic stage, solutions containing various percentages of salicylic acid, resorcinol, thymol, oil of cinnamon, oil of cade in alcohol may be used, or ointments containing salicylic acid, praecipi-

tated sulphur, benzoic acid, crude coal tar in a petrolatum base may be employed with benefit.

Dusting powders of boric acid or talcum are useful in the shoes. Recent vaccines of the fungus have proven of benefit in selected cases. Curetting away of accumulated dead fungus laden skin in order to allow the fungicidal medication freer action is always of benefit. The use of sunlight and ultraviolet radiation is indicated in many cases. The cautious use of fractional x-ray by a qualified specialist at specified intervals usually will shorten the course of an infection. The treatment of an individual case is determined by the judgment and skill of the attending physician. *(1% sodium hypochlorite is used as a prophylactic in the Los Angeles City Schools.—Ed.) Louis F. X. Wilhelm, M.D., Health News, Los Angeles City School District, March, 1938, page 8.

* * * * *

The School Lunch.—Lunch, for the school child, is a very important meal. Along with breakfast it is too often slighted because of lack of supervision. Dinner is almost always an adequate meal because sufficient time is spent in its preparation and consumption, the whole family sits down to the table and father, after a hard day's work, demands a hearty meal. But breakfast is apt to be skimpy because of bad habit and the rush to get to school on the part of the children and to work for the parents. If, to this hastily swallowed and inadequate breakfast there is added four or five hours later a stingy lunch, the school child is sure to suffer from malnutrition with its attendant train of evils: lack of energy, lowered resistance to disease, faulty posture, and poor school work.

The great majority of children either carry a lunch from home, eat in the school cafeteria, or supplement the home-prepared lunch with foods purchased at school. These may be milk, soup, ice cream, candy or "hot dogs." Very few children go home for lunch. It is the duty of the school to see that every child who eats lunch at school has a well balanced meal containing sufficient calories. This may be done through supervision and education.

How much lunch should a child eat? In general he should obtain one-third of his total caloric requirements at lunch. From age 5 to 13 he should have from 32 to 38 calories per pound of body weight in twenty-four hours. The child of 5 requires about 1500 calories per day. The child of 13 needs 2900 to 3200 calories. The child of 16 ought to have 26 to 36 calories per pound or 3200 to 4100 calories in twenty-four hours. Therefore the 5 to 6-year-old should have a lunch containing 500 calories, the child from 7 to 12 years old needs from 560 to 835 calories for lunch, and the older child from 835 to 1360, depending on his size and weight. Girls generally require fewer energy units than boys. In the younger children, boys need only 50 to 100 calories more than girls of the same age. As they grow older boys require 400 to 600 more calories than girls in the twenty-four hour period.

Lunch, like every other meal, should be balanced. That is, it should contain, in addition to carbohydrate, the energy-producing portion, some protein, minerals, vitamins, and cellulose or bulk. In other words, it should consist of bread, milk, meat or egg, fruit and vegetables. It is not necessary to be a nutrition expert to familiarize oneself with average caloric food values. For convenience they are estimated in 100 caloric portions. It is easy to remember that each of the following portions furnishes 100 calories: 5 ounces of milk, a large egg, a large apple, a large orange, a large pear, 3 large prunes, 4 teaspoonsful of sugar, one large ear of corn, one pat of butter, one large banana, one lamb chop, one shredded wheat biscuit, one average-sized potato, one cubic inch of cheese, four Uneeda biscuits, one tablespoonful of olive oil. A short study of a caloric table should enable anyone quickly to estimate the approximate caloric value of any meal without weighing or measuring. And because of the varying requirements exact estimates are not necessary.

For a twelve-year-old child a cafeteria meal containing 765 calories and including the essential food elements might consist of the following:

One 8 oz. glass of milk	165 calories
One meat or cheese sandwich	300 calories
Tomato or lettuce salad	200 calories
Fruit	100 calories
Total	765 calories

The milk, salad and fruit contain the necessary vitamins, minerals and roughage plus some protein. The sandwich contains the carbohydrate and protein. Many other combinations can easily be arranged according to the menu and the ingenuity of the cafeteria manager.

The question naturally arises: "How are we going to get the children to eat an adequate balanced meal?" By education, by suggestion, by making it the custom, the style, the thing to do. One method is to make up several desirable combinations that contain the required elements and sell the meal a little cheaper than the same food elements could be obtained separately. Every teacher can help by her efforts in food-nutrition-health education. Every school should have a health counselor or health coordinator, one of whose duties might be lunch supervision.

For children who bring lunch, a room with tables and chairs should be provided. Eating lunch on dusty playgrounds is not a wholesome practice. Adequate supervision is not practicable. Children often throw away parts of the lunch that careful, conscientious parents believe they have eaten—usually the parts that are most valuable, like bread crusts, fruit and vegetables, either because they don't appeal to the appetite or take too long to chew. They want to join their playmates in a game which is going on under their envious eyes and filling their food with dust. Such haphazard, unsupervised eating does not encourage good table manners either. It sometimes results in

"swapping" of food, with the possibility of the transfer of undesirable germs. Provision should be made for washing hands before eating, and all children should be expected to carry out this fundamental health habit. Children should not play strenuously for at least one-half hour after eating. Reading, walking or sitting will not interfere with digestion, but the ideal is complete relaxation.

The indiscriminate consumption of candy, ice cream, soda pop, and "hot dogs" should be discouraged by every school; also the lavish use of mustard and other "high" seasonings. Each school can control the amount and kind of candy sold, and the same is true of the other indigestion-producing comestibles. Pure candy and ice cream are wholesome foods.

The school should restrict the sale of candy to the best and purest forms. This should be sold only after the noon meal, and the amount sold to each child should be strictly limited. Of course children will buy candy at the corner drug store on the way home from school, but if they have had an adequate lunch in school and if the school educates them regarding the evils of the candy habit, the drug store and the confectionery won't get so many of their nickels.

Food plays such a dominant part in our lives and our food habits determine so largely what kind of persons we are that the schools are fortunate in being able to supervise at least one-third of the eating of the children and through health education to determine what shall be their choice of foods in the home.—John L. C. Goffin, M.D., in Health News, Los Angeles City School District, March, 1938, page 2.

* * * * *

Food Deficiencies and Dental Decay.—We have listened to many lectures and read many papers on foods and their deficiencies during the past ten years, and all kinds of diseases have been ascribed to these deficiencis, including dental decay. While Rickets, Pellagra, and Beriberi have been definitely proved to be the results of deficiencies, *dental decay has not been so proven.* In the deficiency diseases of Rickets, Pelagra, and Beriberi, we have many cases where the teeth are excellent, which would indicate that the deficiency was only one of the factors, if any. We also have many cases with no apparent deficiencies in the diet, where the teeth are quite badly decayed. After calcification and eruption it is very doubtful if any one, or more, of the mineral or vitamin deficiencies have any direct bearing on dental decay when considered by themselves, and that the decay we find accompanies and indicates other systemic conditions of the body as a whole. In other words, decay is more probably a by-product of other systemic conditions, than an entity in itself.

In an examination of 500 persons suffering from some form of dental or medical disorder, it was found that few had an optimum diet. It might

be enlightening to examine 500 persons *who were not* suffering from any apparent dental or medical disorder, and observe how many of these diets were deficient in minerals and other food factors, according to our optimum standards. We know that an individual may receive liberal amounts of all food factors and still have a deficiency disease. We also have those who do not receive sufficient amounts of the food factors and who do not suffer from deficiency diseases. It seems to me we are only getting a corner view of the subject instead of looking at both sides.

There is no question that all persons are not capable of the same degree of health. Heredity influences this to a very great extent, and when we can determine what these heredity weaknesses are, then these weaknesses can be strengthened very largely by right living, and that is the basis for the treatment for dental decay. We are led to believe that the deficiencies in the diet are the leading causes of dental dcay. I do not agree with this view, for we have charted the diets of some 366 children over a period of years, (these children leading normal lives in average homes), and we have found children with adequate diets in all factors but not free from dental decay. In fact some of these children have a high caries index. On the average we do not have a higher caries index in those children whose diets are low or deficient. We also have children in this group with perfect teeth, which would lead me to think that diet adequacy or inadequacy is not the prime factor in decay, beyond the point of improving the whole body metabolism, and with the whole body metabolism stepped up, the teeth would naturally show less decay.

I am far from convinced that adequacy or deficiency in the dietary factors by themselves, scientifically administered by tablet and bottle, have any direct bearing on dental immunity. The human body as well as the teeth was developed on natural foods, eaten in a natural way, and it would seem that the most rational method would lie in partaking of simple meals, satisfying the appetite for the moment with one or two foods. Where we do need a diet containing all the food factors necessary to life, it is illogical and contrary to body chemistry to include all of these factors at each meal, but they should be taken over a series of meals, then each meal should be made up of one class of food. Our forefathers ate simply and they developed and kept wonderful sets of teeth. Each food requires *definite digestive treatment,* and where the sight, smell, or thought of food starts the digestive juices going, it requires the *actual contact* of the food in the *digestive* tract to determine the strength and quality of the juices needed for that particular food.

To put a Chameleon on a Scotch plaid is rather a strain on the Chameleon, so putting all classes of foods in the digestive tract at the same is also a strain on the digestive glands which over a period of time weakens these glands.*

* Yet the food produced by nature for the nurture of infants—mother's milk—is a combination food. Ed.

Dr. Sherman has employed the term *selective* eating. I am of the opinion that selective eating of natural foods at simple meals, balancing the body requirement over a period of 24 to 72 hours will do more to prevent dental disease than any other method followed up to the present time. *Course* meals, from soup to nuts, are curse meals, and civilization has always stepped backwards in health, when the people become prosperous enough to afford such large varieties of foods at the same meal.—Waite A. Cotton, D.D.S., New York Journal of Dentistry, June 1938, pp. 212-214.

* * * * *

Use of Drugs by Athletes.—Drs. Govaerts, Anciaux and Plasch spoke before the Société Médicale Belge d'Education Physique et de Sports, asking the society to concern itself with the problem of the use of drugs by athletes. The speakers presented a report on the drugs most frequently used by athletes for increasing their efficiency during sports. This practice should be severely prohibited. The substances most frequently used are alcohol, melissa water, strychnine and digitalis preparations. The problem was brought to the attention of the society by the Belgian Olympic National Committee. It was resolved that doping is a dangerous practice which is detrimental both to the health of the person and to the morals of athletes. It should be controlled by the most severe restrictions. Athletic efficiency is acquired by following the proper rules of hygiene and a rational progressive training under supervision of a physician. The society voted to have the clubs obtain the services of a physician, preferably one who has specialized in physical education.—The Journal, A.M.A., July 30, 1938, p. 463.

* * * * *

A State-Wide Mental Hygiene Program for Elementary Schools*

1. *Trained Teachers.*—Teachers must be trained, encouraged, and guided in carrying their share of the responsibility for the mental health of children. The classroom teacher is the first line of defense in an organized program.

2. *Outline of Organization.*—(1) The homeroom teacher must do mental-hygiene teaching indirectly and at all times, especially stressing mental-health attitudes and habits. (2) In Grades 6-8 a specialist may conduct occasional classes. (3) Mental hygiene should be integrated with physical education, elementary science, and so far as possible, with all curricular content. (4) There should be a mental-hygiene coordination committee with a chairman trained and experienced in psychiatry. (5) Group conferences with teachers are essential.

3. *Diagnostic and Remedial Services.*—There should be adequate diagnostic and remedial services for all children who are maladjusted or who present personality difficulties. All such services should be entrusted to

* Abstracted by the author, Frederick L. Patry, M.D., Albany, N. Y., from *Journal of Abnormal and Social Psychology.* Vol. 32, April-June, 1937, 74-99.

qualified persons. The aim should be a positive one, that of helping a child to measure up to his growing optimal capacity level.

4. *Preventive Measures.*—There should be a preventive mental-hygiene program under a mental-hygiene committee with a specialist in psychiatry and mental hygiene as chairman. If a specialist is not available, the best-prepared person on the staff should be used. Part-time service should be obtained when full-time service is impossible.

5. *All-Year Service.*—The mental-hygiene service must be maintained throughout the year, and the personnel must receive adequate compensation.

6. *Early Recognition of Maladjustment.*—Recognition of pupil maladjustments at the beginning of the school year is important, both for the sake of the pupil and as a means of eliminating the focus of infection.

7. *Incidental Attention Insufficient.*—No program can be effective unless every teacher and administrator is mental-hygiene conscious every minute of the hour and every hour of the day. The most potent mental-hygiene weapon is the classroom example of the teacher.

8. *Optimism.*—There should be a strong bias toward accepting the principle that all children can be improved. The program should be preventive and educational rather than curative. But remedial service is kept available because maladjustment can occur despite all our efforts.

9. *Cooperation With the Home.*—The program should be extended to include parents and the pre-school child. "If the pattern or example on the part of adults is what it should be, we may have little fear of maladjustments arising in the school age period". If there is no visiting teacher or psychiatric social worker, some promising teacher may be encouraged to take post-graduate work. The school nurse, public health nurse, and attendance officer should cooperate in the program.

10. *Teacher Recognition of Limitations.*—Teachers must recognize their limitations and must know when to depend upon the expert assistance of specialists. They should acquire the habit of sharing responsibility for the solution of difficult problems.

11. *Psychiatric Training of Teachers.*—The specialists in psychiatric education and mental hygiene should assist the classroom teacher to become more psychiatrically intelligent within her limitations. To this end conferences with the teacher may be helpful. Teachers can improve themselves by attendance at child-guidance clinics and by taking courses in mental hygiene, child development, and parental education.

12. *Mental Hygiene and Health Education.*—Mental hygiene should be regarded as a coordinate and not as a subordinate aspect of health education and health service.

13. *Training in Teachers Colleges.*—State normal schools and teachers colleges should both provide training in mental hygiene and offer prospective teachers a mental-hygiene service that will help develop in them the whole-

some personalities so necessary in the classroom.

14. *Cooperation with State Departments.*—There should be active, effective, and harmonious cooperation with the state departments of mental hygiene, health, correction, and social welfare, with state and local medical and dental societies, and with non-official health and welfare organizations.

* * * * *

NOTES

Promotion for our Assistant Editor,— Earl E. Kleinschmidt, M.D., Dr.P.H., has been appointed Director of the Department of Preventive Medicine, Public Health and Bacteriology of the School of Medicine of Loyola University, Chicago, Illinois.

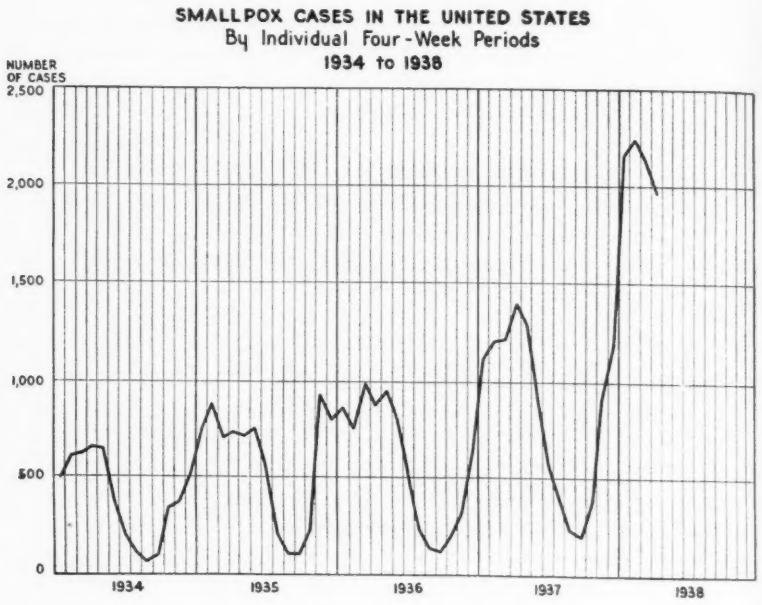
* * * * *

Dr. Harrington Honored.—A dinner was given for Dr. Francis E. Harrington, Health Commisisoner of Minneapolis and founder and director of the Lymanhurst Health Center, at the Minnesota Union, University of Minnesota, May 23. The occasion also commemorated the seventeenth anniversary of the health center as a school for tuberculosis children. Dr. William A. O'Brien, associate professor of pathology and preventive medicine and public health, University of Minnesota Medical School, Minneapolis, was toastmaster and speakers included Drs. Arthur E. Benjamin, Stephen H. Baxter, Chester A. Stewart, Jay Arthur Myers and Irvine McQuarrie, all of Minneapolis; Robert B. J. Schoch, health officer of St. Paul, and Carl Buck, Dr.P.H., New York, field director of the American Public Health Association.—The Journal, A.M.A., July 16, 1938, p. 261.

* * * * *

Institute on School Health at Ohio State.—Ohio State University, Columbus, conducted a school health institute June 29 to July 2. Invited were school administrators, board members, parents, teachers, physicians, dentists, school nurses, psysical educators, psychologists, and personnel officers. Subjects discussed included the teacher as a case finder in a school health program, health of school athletes and physical education students, health of girls in physical education, intramural and interscholastic athletics, sex education, mental hygiene, visual problems, orthopedic problems, and problems of audition and phonetics. The speakers included Drs. Morris Fishbein, Chicago, Editor of The Journal, on "Medical Nostrums and Quackery"; John H. J. Upham, dean of Ohio State University College of Medicine, "Medicine Views School Health," and Don W. Gudakunst, Lansing, State Health Commissioner of Michigan, "Newer Trends in School Health Service."—Journal, A.M.A., July 23, 1938, p. 329.

Smallpox.—The chart below carries its own warning:



* Statistical Bulletin, Metropolitan Life Ins. Co., May, 1938.

REVIEW

Newer Types of Instruction in Small Rural Schools. Chapter II. Health Practices and Techniques.

This is from the Yearbook for 1938 of the Department of Rural Education of the National Education Association. This section on Health Practices and Techniques was prepared by Vivian V. Drenckhahn, County Health Teaching Consultant for the Buffalo Tuberculosis Association of Erie County, New York, and Miss Ruth E. Grout, Director of Health Education Study of the Cattaraugus County School Health Service, New York. These writers speak from personal experience derived from actually organizing and putting into effect a program of health practices and techniques in the rural schools of the two counties in which they work.

It is an effort to bring about teaching health through real experience.

"In health education a first and most important step for the teacher is to find the existing needs and problems of the pupils. These needs are revealed primarily through a study of the children and their environment. The findings of the health examination, observations of health practices and of social and mental adjustments, discussions with parents, the causes for school

absences, a study of local morbidity and mortality rates, and a review of health knowledge tests will present a picture of health needs around which activities can be organized."

Some of the information on which an estimate is made of the needs is based on a study made by the New York State Department of Education on the health behavior of a large group of children. In addition, the use of questionnaires, inventories, or checklists are suggested as a means of securing information. Various school "inventories" and checklists are suggested for supplementary information. The type of school invironment and its use are additional factors to be considered. Sanitary drinking water equipment, toilets, lighting, ventilation, and temperature control, and the correct use of these facilities are factors which may be used in a teaching program.

"The way in which the school day starts has an influence on the program of the whole day. At that time, joyous happy attitudes are built or destroyed." In rural situations, particularly, the teacher should observe unobtrusively any signs of communicable diseases which may appear. This might be well supplemented by the morning inspection to check health habits. The noon hour, too, should be made to contribute to healthful living. A selected lunch eaten under pleasant environment is essential. The usual health habits before eating, the length of time in eating, and the contents of the meal are emphasized. If possible, warm food should be added to the lunch brought from home.

What of actual health procedures? While hair-splitting observances of any standards of weight as compared to height and age is no longer accepted as scientific, yet we realize that rate of growth is an important factor. Increase in weight is one sign of health. Such a procedure tends to eliminate emotional disturbances which are likely to arise when a child is undernourished. Additional steps should be made, too, to prevent over-tiredness. Short periods of mental and physical relaxation help to do this. Inattention, tenseness, irritability, listlessness often are indicators of fatigue. Change from inactivity to physical activity is restful. "On the classroom teacher, especially in rural areas, rests the task of recognizing early symptoms of disease, excluding a child when necessary, and reporting the case to the health authorities." The teacher can play an even more important role in a preventive program.

The real proof of the effectiveness of a school health service rests on two things, the amount of protection against communicable disease that has been acquired, and the amount of correction of physical defects that has been brought about. In rural sections, the accomplishment of these rests particularly upon the classroom teacher. She should be kept fully informed. Also, attention should be given to the physically handicapped child so that special courses or home instruction may be arranged for the badly crippled,

blind, deaf, or otherwise severely handicapped.

"The instructional program touches upon all phases of child life. The child's environment, his daily activities in home and school, the services for his health protection, and his health problems both as an individual and as a member of the community, are significant factors to draw upon in health teaching." In elementary grades emphasis is directed toward the function of good health practices. The transfer of knowledge into behavior is essential. Teaching should be based on scientifically true facts. Study of home and school environment is of great importance in health teaching. Visual aids such as slides, movies, and construction work are of great value.

Definite relationship between school, home, and community must be established if the school health program is to function. If possible, parents should be present at the time of the health examination. In one state (Virginia) the classroom teacher has a file of health literature which is for the use of parents. In many communities, the summer round-up functions helpfully.

No school health program can be set up as the established model. The needs vary with the locality, as well as with the environment. The needs and environmental factors vary with the state and with the localities within the state. They vary with the type of racial groups, and with their economic status. In the South, malaria, and hookworm infection occupy a prominent place in physical findings. In some states emphasis on tuberculosis protection is emphasized. In others, home sanitation and proper disposal of waste should be emphasized.

As is the case with other fields of teaching, the effectiveness of the teacher improves with practice. She need not be a specialist in the field of health education, but he should know a few fundamental techniques for bringing about changes in behavior, have a scientific knowledge of hygiene and sanitation, and a vision of what needs to be done.

The chapter is strengthened with numerous footnotes, and is followed by a list of references, one for children and one for teachers.

This is an excellent summary of experiences and suggestions, which is well worth the study of any one interested in health teaching. The bibliography is particularly valuable, as it offers a basis whereby any teacher or supervisor may acquire more intensive information.

MEETINGS

American School Health Association and the American Public Health Association, October 24-28, 1938, Kansas City, Mo.

The fourth annual conference of Food Service Directors will be held in Rochester, N. Y., November 3-5, 1938. This conference is sponsored by the American Dietetic Association.